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| 09/454,057 | 12/02/1999 | FRANK M.G. DOERENBERG | 543-98-015 | 3311 |

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| EXAMINER |
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NGUYEN, CHAU T

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| ART UNIT | PAPER NUMBER |
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2176

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/454,057

Applicant(s)

DOERENBERG ET AL.

Examiner

Chau Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/12/2005 and 06/23/2005 has been entered. Claims 1-34 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Independent claims 1, 16, 30 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Games et al. (Games), U.S. Patent No 3,755,628 and further in view of Birkedahl et al. (Birkedahl), US Patent No. 6,133,846.

4. As to independent claims 1, 30 and 34, Games discloses a network topology backplane bus architecture comprising:

a plurality of independent data communication lines (col. 3, lines 38-60 and Fig. 2: three channels designated A, B, and C);

a plurality of processing nodes sharing the independent data communication lines for data communication (col. 3, lines 38-60 and Fig. 2: communication units J, K, L and M, and each unit links to three channels);

dividing a plurality of data communication lines into mutually exclusive first and second subsets of data communication lines (col. 3, lines 38-60 and Fig. 2: three channels designated A, B, and C);

one of the processing nodes being normally connected for both transmitting and receiving on a first subset of the data communication lines and receiving on a second subset of the data communication lines (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3) ; and

another of the processing nodes being normally connected for both transmitting and receiving on the second subset of the data lines and receiving on the first subset of the data lines (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3).

However, Games does not explicitly disclose one of the processing nodes being normally connected for only receiving on a second subset of data communication lines and another of said processing nodes being normally connected for only receiving on said first subset of said data lines. Birkedahl discloses in the Abstract, col. 4, lines 5-34 and Fig. 3: component 110C (node) connects to bus 107L (first subset) for transmitting

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and receiving data, and component 110C connects to bus107R (second subset) for receiving data only; component 110E (another node) connects to bus 107R (second subset) for transmitting and receiving data, and the component 110E connects to bus 107L (first subset) for receiving data only. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Birkedahl and Games to include one of the processing nodes being normally connected for only receiving on a second subset of data communication lines and another of said processing nodes being normally connected for only receiving on said first subset of said data lines to provide bus communication architecture that provides reliable and redundant data communication with a high bandwidth.

5. As to independent claim 16, Games discloses a network topology backplane bus architecture comprising:

a plurality of processing nodes transmitting and receiving data communications (col. 3, lines 38-60 and Fig. 2: communication units J, K, L and M, and each unit links to three channels);

a plurality of independent data communication networks formed of a plurality of independent data communication lines, a subset of said data communication networks extending between ones of said plurality of processing nodes (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3: three channels designated A, B, and C and communication units J, K, L and M, and each unit links to three channels);

a first subset of ones of said data communication lines allocated to a first of said processing nodes for transmitting and receiving data communications, said first subset of said data communication lines further allocated to a second of said processing nodes (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3);

a second subset of ones of said data communication lines allocated to said second processing nodes for transmitting and receiving data communications, said second subset of said data communication lines further allocated to said first processing nodes (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3);

However Games does not explicitly disclose monitoring data communications transmitted on said first subset and second subset of said data communication lines and receiving data communications as a function of said monitoring of said data communications transmitted on said first subset and second subset of said data communication lines. Birkedahl discloses all components (processing nodes) monitor transmissions of all other nodes and buses (data communication lines), and a controller monitors data communications of each component and compares the content of data received with the timing table stored in memory (col. 5, line 28 – col. 6, lines 58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Birkedahl and Games to include monitoring data communications transmitted on said first subset and second subset of said data communication lines and receiving data communications as a function of said monitoring of said data communications transmitted on said first subset and second subset of said data communication lines. Birkedahl suggests that by monitoring the flow

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of data on the buses (data communication lines), the controller can ensure that clock signals remain in check across the entire system.

6. Dependent claims 2-15, 17-29, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Games and Birkedahl as discussed in claims 1, 16, 30 and 34 above and further in view of Baker et al., U.S. Patent No. 5,325,517.

7. As to dependent claims 2-3, 18, 20, 25-26 and 32-33, however, Games and Birkedahl do not disclose ones of the independent data communication lines comprise a first independent data communication network and different ones of the independent data communication lines comprise a second independent data communication network. In the same field of endeavor, Baker discloses a prior art IBM System/88 module, plural modules interconnected by high speed data interconnections and plural modules interconnected via a network in a fault tolerant environment (col. 4, line 66 – col. 5, line 2, and col. 22, lines 11-67). Thus, it would have been obvious to one of the ordinary skill in the art at the time of the invention was made to combine the teaching of Games and Baker to include ones of the independent data communication lines comprise a first independent data communication network and different ones of the independent data communication lines comprise a second independent data communication network in order to share information.

8. As to dependent claim 4, Games, Birkedahl, and Baker (Games-Birkedahl-Baker) disclose the one of the processing nodes transmitting and receiving on a first subset of the data communication lines utilizes the first subset of the data communication lines for local communication within the processing node (Baker, col. 23, line 8 – col. 24, line 36).

9. As to dependent claim 5, Games-Birkedahl-Baker disclose one of the processing nodes transmitting and receiving on a first subset of the data communication lines further utilizes the first subset of the data communication lines for broadcasting transmissions to another of the processing nodes (Games, col. 5, line 24 – 6, line 67, and Fig. 3 and 5).

10. As to dependent claim 6, Games-Birkedahl-Baker disclose one of the processing nodes transmitting and receiving on a first subset of the data communication lines further utilizes the first subset of the data communication lines for receiving data transmission from another of the processing nodes (Games, col. 5, line 24 – 6, line 67, and Fig. 3 and 5).

11. As to dependent claim 7, Games-Birkedahl-Baker disclose one of the processing nodes transmitting and receiving on a first subset of the data communication lines is one of a plurality of the processing nodes transmitting and receiving on the first subset of the data communication lines (Games, col. 5, line 24 – 6, line 67, and Fig. 3 and 5).

12. As to dependent claims 8, 19, 21, and 27, Games-Birkedahl-Baker disclose each of plurality of processing nodes transmitting and receiving on the first subset of the data communication lines are co-located in a first resource enclosure (Baker, col. 5, lines 15-18, col. 18, line 66 – col. 19, line 33, col. 27, line 22 – col. 28, line 66, and col. 46, line 66 – col. 47, line, 11 and Fig. 7-9; units (processing nodes) may reside within a single module enclosure in a fault tolerant system).

13. As to dependent claims 9 and 22, Games-Birkedahl-Baker disclose each of plurality of processing nodes transmitting and receiving on the first subset of the data communication lines time-share the data communication lines with others of the plurality of processing nodes transmitting and receiving on the first subset of the data communication lines (Games, col. 4, line 57 – col. 5, line 23).

14. As to dependent claim 10, Games-Birkedahl-Baker disclose each of plurality of processing nodes transmitting and receiving on the first subset of the data communication lines time-shares the data communication lines in synchronization with others of the plurality of processing nodes transmitting and receiving on the first subset of the data communication lines (Games, Abstract and col. 4, line 57 – col. 5, line 23).

15. As to dependent claim 11, Games-Birkedahl-Baker disclose the processing node transmitting and receiving on the second subset of the data lines and receiving on the

first subset of the data lines utilizes the second subset of the data communication lines for local communication with the processing node (Baker, col. 23, line 8 – col. 24, line 36).

16. As to dependent claims 12 and 31, Games-Birkedahl-Baker disclose the processing node transmitting and receiving on the second subset of data communication lines further utilizes the second subset of the data communication lines for broadcasting transmissions to another of the processing nodes (Games, col. 5, line 24 – 6, line 67, and Fig. 3 and 5).

17. As to dependent claims 13 and 17, Games-Birkedahl-Baker disclose one of the processing nodes supports different ones of flight critical functions (Games, col. 3, lines 39-60).

18. As to dependent claims 14, 23, and 29, Games-Birkedahl-Baker disclose one or more of the processing nodes supporting one of the flight critical functions is duplicated in one or more additional ones of the processing nodes (Games, col. 3, lines 39-60).

19. As to dependent claims 15, 24, and 28, Games-Birkedahl-Baker disclose one of the processing nodes supporting the one of the flight critical functions is located in a first resource enclosure; and at least one of the additional processing nodes supporting the one of the flight critical functions is located in a physically isolated second resource

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enclosure (Baker, col. 5, lines 15-18, col. 18, line 66 – col. 19, line 33, col. 27, line 22 – col. 28, line 66, and col. 46, line 66 – col. 47, line, 11 and Fig. 7-9).

Response to Arguments

In the remarks, Applicants argued in substance that

A. "Birkedahl is an improper reference as it currently owned by the same party as the instant application." (See Remarks/Arguments page 10).

In response to argument A, it's the burden of the applicants to prove establishing common assignee (as per 35 USC 103(c)) at the time the claimed invention was made which was dated on 02/02/1999. (see MPEP 706.02(I)(2)) Therefore, the Birkedahl reference remains part of the rejection at the present time.

B. Birkedahl fails to disclose or suggest claim 1. (See Remarks/Arguments page 10).

In response to argument B, Applicants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Examiner's rejected claims 1 using two

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different references Games et al. (Games), U.S. Patent No 3,755,628 and further in view of Birkedahl et al. (Birkedahl), US Patent No. 6,133,846. Please see the rejection above.

C. "Birkedahl again fails to disclose or suggest a first processing node being connected for both transmitting and receiving on the first subset data communication lines, but being connected for only receiving on the second subset of data communication lines; and a second processing node being connected for both transmitting and receiving on the second subset of said data lines, but being connected for only receiving on the first subset of data lines, as presently recited in claim 1." (See Remarks/Arguments page 12).

In response to argument C, this argument is similar to argument B, which is Applicants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Games discloses a first subset of ones of said data communication lines allocated to a first of said processing nodes for transmitting and receiving data communications, said first subset of said data communication lines further allocated to a second of said processing nodes (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3); a second subset of ones of said data communication lines allocated to said second

processing nodes for transmitting and receiving data communications, said second subset of said data communication lines further allocated to said first processing nodes (col. 3, lines 38-60, col. 5, line 24 – col. 6, line 67, and Fig. 3). However Games does not explicitly disclose monitoring data communications transmitted on said first subset and second subset of said data communication lines and receiving data communications as a function of said monitoring of said data communications transmitted on said first subset and second subset of said data communication lines. Birkedahl discloses all components (processing nodes) monitor transmissions of all other nodes and buses (data communication lines), and a controller monitors data communications of each component and compares the content of data received with the timing table stored in memory (col. 5, line 28 – col. 6, lines 58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Birkedahl and Games to include monitoring data communications transmitted on said first subset and second subset of said data communication lines and receiving data communications as a function of said monitoring of said data communications transmitted on said first subset and second subset of said data communication lines. Birkedahl suggests that by monitoring the flow of data on the buses (data communication lines), the controller can ensure that clock signals remain in check across the entire system.

D. “Baker fails to disclose or suggest either a first processing node connected for only receiving on one subset of data communication lines, or a second processing node

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connected for only receiving on a different subset of data communication lines, as recited in claim 1.” (see Remarks/Argument page 15)

In response to argument D, Examiner's used only Games and Birkedahl references to reject claim 1. Therefore, Applicants can only argue claim 1 based on these two references, which are already addressed above. Since Baker reference is not used to reject claim 1, argument D is considered irrelevant.

20. Applicant's arguments filed 06/23/2005 have been fully considered but they are not persuasive. Please see the rejection and response to arguments above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau Nguyen whose telephone number is (571) 272-4092. The Examiner can normally be reached on Monday-Friday from 8:30 am to 5:30 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Heather Herndon, can be reached at (571) 272-4136.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. On July 15, 2005, the Central Facsimile (FAX) Number will change from 703-872-9306 to 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chau Nguyen
Patent Examiner
Art Unit 2176

William L. Bashore
WILLIAM BASHORE
PRIMARY EXAMINER
8/5/2005